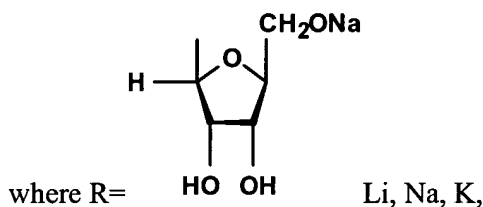
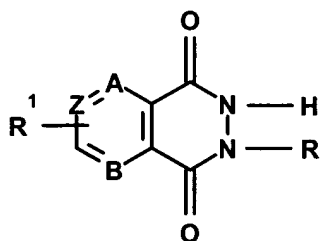


Claims

1. Use of cyclic bioisosteres of a purine system derivatives having a general structural formula:



$R^1 = -H, -NH_2, -Br, -Cl, -OH, -COOH,$

$B = -N=, -CH=, Z = -CH=, -N=,$

$A = -N=$ at $B = -N=, Z = -CH=,$

$A = -CH=$ at $B = -N=, Z = -CH=,$

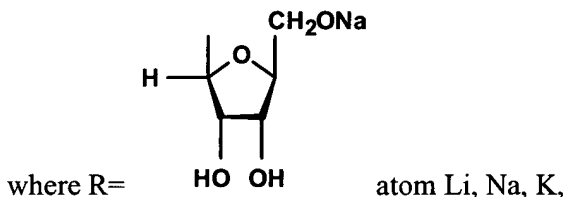
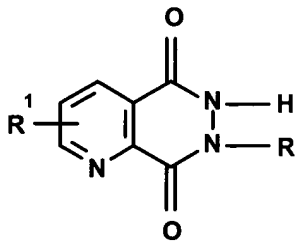
$A = -CH=$ at $B = -N=, Z = -N=,$

$A = -CH=$ at $B = -CH=, Z = -CH=,$

$A = -CH=$ at $B = -CH=, Z = -N=,$

and their pharmacologically acceptable salts as active ingredients having activity with respect to nitrgic and dopaminergic systems in a pharmaceutically composition for treatment of diseases caused by disorders of a nitrgic system and /or dopaminergic system of an organism, containing an active ingredient in an amount sufficient for effecting said systems in pharmacologically acceptable carrier.

2. Use as claimed in claim.1, characterized in that active ingredient is a derivative of pyrido[2,3-d]-6H-pyridazine-5,8-dione, having a general formula:

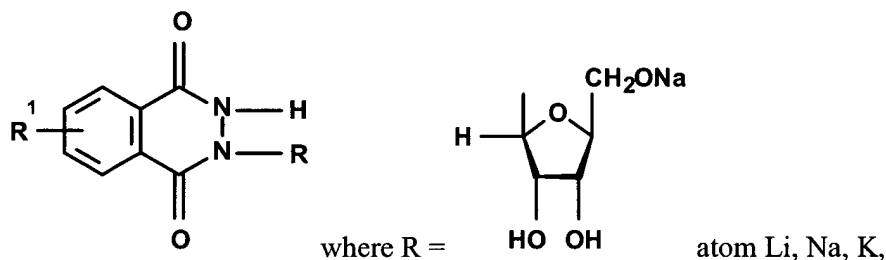


$R^1 = -H, -NH_2, -Br, -OH, -COOH.$

3. Use as claimed in claim.1, characterized in that the active ingredient is selected from the group including:

sodium salt of 7-(β -D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (1),
 sodium salt of 4-amino-7-(β -D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (2),
 sodium salt of 3-bromine-7-(β -D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (3),
 isodium salt of 4-hydroxy-7-(β -D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (4),
 disodium salt of 3-carboxy-7-(β -D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (5),
 lithium salt of pyrido [2,3-d]-6H-pyridazine-5,8-dione (6),
 sodium salt of pyrido [2,3-d]-6H-pyridazine-5,8-dione (7),
 potassium salt of pyrido [2,3-d]-6H-pyridazine-5,8-dione (8).

4. Use as claimed in claim.1, characterized in that the active ingredient is a derivative of benzo[d]-3H- pyridazine-1,4-dione, having a general formula::

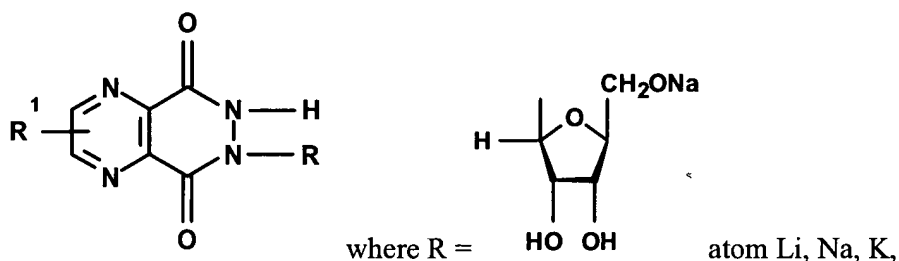


R¹ = - H, -NH₂, -Cl, -OH, -COOH.

5. Use as claimed in claim.1, characterized in that the active ingredient is selected from the group including:

sodium salt of 2-(β -D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (9),
 sodium salt of 5-amino-2-(β -D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (10),
 sodium salt of 6-amino-2-(β -D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (11),
 sodium salt of 5-chlorine-2-(β -D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (12),
 disodium salt of 5-hydroxy-2-(β -D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (13),
 lithium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione (14),
 sodium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione (15),
 potassium salt of 6-amino-benzo[d]-3H-pyridazine-1,4-dione (16),
 disodium salt of 5-hydroxy-benzo[d]-3H-pyridazine-1,4-dione (17),
 disodium salt of 6-carboxy-benzo [d]-3H-pyridazine-1,4-dione (18).

6. Use as claimed in claim.1, characterized in that the active ingredient is a derivative pyrazine[2,3-d]-6H-pyridazine-5,8-dione, having a general formula::

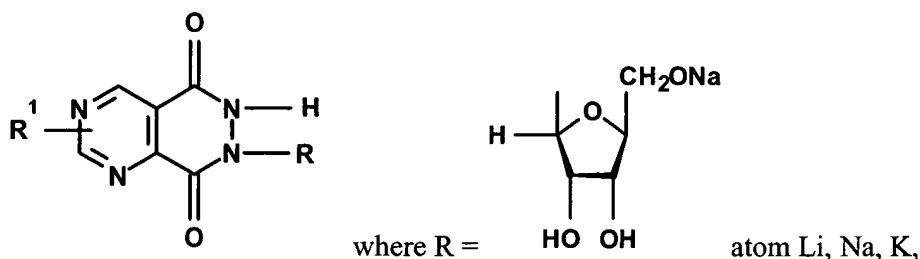


R¹ = -H, -NH₂, -Br, -OH, -COOH.

7. Use as claimed in claim.1, characterized in that the active ingredient is selected from the group including:

sodium salt of 7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (19),
 sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (20),
 sodium salt of 3-amino-7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (21),
 sodium salt of 3-bromine-7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (22),
 disodium salt of 2-hydroxy-7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (23),
 disodium salt of 2-carboxy-7-(β-D-ribofuranosile)pyrazino[2,3-d]-6H-pyridazine-5,8-dione (24),
 lithium salt of pyrazino[2,3-d]-6H-pyridazine-5,8-dione (25),
 lithium salt of pyrazino[2,3-d]-6H-pyridazine-5,8-dione (26),
 potassium salt of 3-bromine-pyrazino[2,3-d]-6H-pyridazine-5,8-dione (27),
 sodium salt of 2-amino-pyrazino[2,3-d]-6H-pyridazine-5,8-dione (28).

8. Use as claimed in claim.1, characterized in that the active ingredient is a derivative of pyrimido[4.5-d]-6H-pyridazine-5,8-dione, having a general formula::



R¹ = -H, -NH₂, -Br, -OH, -COOH.

9. Use as claimed in claim.1, characterized in that the active ingredient is selected from the group including:

sodium salt of 7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (29),
 sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (30),

sodium salt of 4-amino-7-(β -D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (31),
sodium salt of 2-bromine-7-(β -D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (32),
sodium salt of 4-hydroxy-7-(β -D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (33),
sodium salt of 4-carboxy-7-(β -D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (34),
lithium salt of pyrimido[4,5-d]-6H-pyridazine-5,8-dione (35),
sodium salt of 2-amino-pyrimido[4,5-d]-6H-pyridazine-5,8-dione (36),
potassium salt of 4-bromine-pyrimido[4,5-d]-6H-pyridazine-5,8-dione (37).

10. Use as claimed in claim.1, characterized in that the active ingredient is used as a neuroprotector in a pharmaceutical composition for protection of a nervous system.

11. Use as claimed in claim.1, characterized in that the active ingredient is used in a pharmaceutical composition for improvement of a cognitive of function and normalization of psychophysiological status.

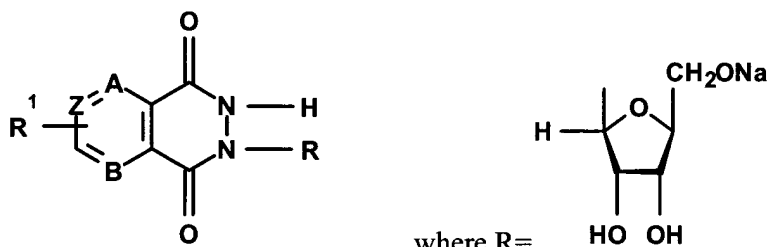
12. Use as claimed in claim.1, characterized in that the active ingredient is used in a pharmaceutical composition of anxiolytic and antidepressive action.

13. Use as claimed in claim.1, characterized in that the active ingredient is used in a pharmaceutical composition for treatment of diseases selected from the group including disorders caused by drug abuse, such as dependences on narcotics, alcohol and nicotine, insomnia, sexual disorders including sexual dysfunction, gastro-intestinal disorders, psychoses, affective disorders, inorganic psychoses, personality disorders, psychiatric disorders of mood, schizophrenia and schizoaffective disorders, polydipsia, bipolar disorders, dysphoric mania, anxiety and associated diseases, obesity, bacterial infections of the central nervous system such, as meningitis, disorders of learning, disorders of memory, Parkinson's disease, neurodegenerative diseases, for example Alzheimer's disease; depression, extrapyramidal side effects of neuroleptics, hypothalamic-pituitary effects, vascular and cardiovascular diseases, dystonia, dyskinesia, hyperkinesia, dementia, ischemia, motion disorders, hypertension and diseases caused by a hyperactive immune system, such as allergies and inflammations, of mammals and human beings in an amount effective for treatment.

Use of cyclic bioisosteres of a purine system derivatives for treatment of diseases caused by disorders of nitrergic and dopaminergic systems

Abstract

The invention relates to application of compounds having a general structural formula:



where R= $\text{HO}-\text{OH}$, Li, Na, K,

$$R^1 = -H, -NH_2, -Br, -Cl, -OH, -COOH,$$
$$B = -N=, -CH=, \quad Z = -CH=, -N=,$$
$$A = -N= \quad \text{at} \quad B = -N=, Z = -CH-,$$

A = -CH= at B = -N=, Z = -CH-,

A = -CH= at B = -N=, Z = -N=,

A = -CH= at B = -CH=, Z = -CH=,

A = -CH= at B = -CH=, Z = -N=.

and/or their pharmacologically acceptable salts as an active ingredient having appropriate activity with respect to nitrenergic and/or dopaminergic systems, in a pharmaceutical composition as neuroprotector for improvement of the cognitive function and for normalization of psychophysiological status, as well as for treatment of a wide spectrum of psychological diseases, cardiovascular diseases, diseases caused by substance abuse, and diseases caused by a hyperactive immune system in mammals including human beings.